Notice No.1

Rules for the Application of Sandwich Panel Construction to Ship Structure, July 2021

The status of this Rule set is amended as shown and is now to be read in conjunction with this and prior Notices. Any corrigenda included in the Notice are effective immediately.

Please note that corrigenda amends to paragraphs, Tables and Figures are not shown in their entirety.

Issue date: November 2021

Amendments to	Effective date	IACS/IMO implementation (if applicable)
Chapter 3, Section 3	1 January 2022	N/A

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Chapter 3
Design Basis for Panels

■ *Section 3*
Panel scantling requirements – decks loaded by wheeled vehicles

3.2 Decks loaded by wheeled vehicles

3.2.1 The scantlings of vehicle deck panels are to satisfy the most severe arrangement of print wheel loads.

Existing paragraph 3.2.1 has been renumbered as 3.2.2.

(Part only shown)

~~3.2.2~~ 3.2.3 The bending stress, σ_b, in the panel subjected to wheeled vehicles is to be taken as:

$$\sigma_b = \frac{\alpha_w P_1}{\left(\frac{d_T^3 - t_c^3}{6 d_T}\right)} \varphi \text{ N/mm}^{~~2}2$$

where

$$\alpha_w = \left[(C_1 t_{n-av} + C_2)t_c + C_3 t_{n-av} + C_4 + (C_5 s + C_6) + C_7\left(\frac{W}{l}\right)^{~~2}2 + C_8\left(\frac{W}{l}\right) + C_9\right] 10^{~~-3}-3$$

~~Φ~~φ $= \frac{500}{m}$ where the wheel load is assumed to be adjacent to the girder, *see Figure 3.3.1 Diagrammatic illustration of wheel load location and size*

P_w = load, in tonnes, on the tyre print. For closely spaced wheels the tyre print area may be taken as a combined print area, *see also Ch 3, 3.2 Decks loaded by wheeled vehicles 3.2.6*

λ = dynamic magnification factor

= 1,25 for harbour conditions

= ~~(1 + 0,7n)~~ $(1 + a_z n)$ for sea-going conditions

a_z is the vertical acceleration at the location under consideration, *see Pt 3, Ch 9, 9.2 Loading 9.2.3* of the *Rules and Regulations for the Classification of Ships*

Existing paragraph 3.2.3 has been renumbered as 3.2.4.

~~3.2.3~~ 3.2.4 The bending stress, σ_b, in *Ch 3, 3.2 Decks loaded by wheeled vehicles ~~3.2.2~~ 3.2.3* is to be less than

~~$\frac{\sigma_o}{k}$~~ $f_\sigma \sigma_o$ N/mm~~2~~^{2}~~.~~, where f_σ is the structural design factor which is to be taken as 0,525.

3.2.5 Where decks are designed for the carriage of wheeled vehicles only or where the panels are subjected to a distributed load in addition to the vehicle loading, the scantling requirements are to be specially considered on the basis of direct calculation. The load area is defined as the footprint of an individual wheel or the area enclosing a group of wheels when the distance between footprints is less than the smaller dimension of the individual prints. The structural design factor, f_σ, is to be as required by *Pt 3, Ch 9, Table 9.3.6 Structural design factors* of the *Rules and Regulations for the Classification of Ships*.

3.2.6 The vehicles are to be positioned so as to produce the most severe loading condition for each panel under consideration.

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